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AUTHOR House, M.; MacLeod, S.
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ABSTRACT

During the past decade teleconferencing systems have gained a substantial role in continuing medical education in Canada through maintenance of contact between physicians in remote and urban areas, medical education, group consultation, and administration. A group of Canadian physicians at Memorial University of Newfoundland and their Kenyan and Ugandan counterparts have undertaken the development of a similar satellite link between Canada and East Africa with ground transmission between Nairobi and Kampala. This program has been accepted for participation in SHARE, a project which makes satellite circuits available to agencies to organize health education programs between developed and developing countries. Since inauguration of the system in January 1986, there have been formal weekly conferences and informal teaching sessions covering such topics as nutritional status and immune response, hepatitis in pregnancy and the newborn, emergency pediatric medicine, and rickets. The system is also a cost effective means of maintaining communication between North American researchers based in East Africa and their home laboratories. It is hoped that the teleconference system will enable the libraries at the University of Nairobi and Makerere University to make online literature searching available to the medical community. Satellite links such as the one described here are currently the most realistic means of providing contact between the medical faculties in Nairobi and Kampala and a broad spectrum of academic physicians in Canada. (MES)

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INTO AFRICA: TELEMEDICINE LINKS CANADA WITH NAIROBI AND KAMPALA

Authors:

Memorial University of Newfoundland
M. House
E. Keough

Makerere University (Kampala)
D. Hillman*
E. Hillman*

University of Nairobi
N. Bwibo
J. Meme
E. Wafula

University of Toronto
S. MacLeod*
N. McCullough*

*Child Health and Medical Education Program (CHAMP)

Presented by M. House and S. MacLeod at the
Annual Meeting of the Royal College of Physicians and Surgeons of Canada
September 25, 1986

Address for correspondence:
Dr. A. M. House,
Memorial University of Newfoundland,
Health Sciences Centre,
St. John's, Newfoundland
A1B 3V6

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INTO AFRICA: TELEMEDICINE LINKS CANADA WITH NAIROBI AND KAMPALA

Introduction

During the past decade teleconferencing systems have gained a substantial role in continuing medical education in Canada. Such systems have been particularly useful in maintenance of contact between physicians practicing in remote areas and their urban counterparts. Teleconferencing has been used in a variety of program formats for medical education, group consultation on medical problems, and for administrative purposes. There has been an increasing use for medical diagnosis through the transmission of electroencephalograms, electrocardiograms and the slow scan transmission of X-rays and other pictures. During this process of development teleconferencing in Canada has enjoyed the support of a number of universities and many professional organizations such as the Royal College of Physicians and Surgeons and the Canadian College of Family Practice. Direct financial support has also been received from several public and private granting agencies.

It is against this background of Canadian experience and expertise in teleconferencing that initiatives were taken by a group of Canadian physicians and their Kenyan and Ugandan counterparts to develop a satellite link between Canada and East Africa with ground transmission between Nairobi and Kampala.

There are many similarities between medical practice in East Africa and that in rural Canada. Physicians in Kenya and Uganda are for the most part isolated from their academic colleagues since there are only two medical schools serving these countries. Furthermore, academic physicians at the University of Nairobi or at Makerere University in Kampala suffer themselves from isolation. Travel is difficult in Africa, medical meetings are less frequent, and contact with academic colleagues is sporadic at best.

By North American standards the number of faculty employed in East African medical schools is low and faculty members often find their time stretched to an extreme degree between clinical practice, teaching, and research. Competing demands for time are such that the East African academic is left little opportunity for continuing education or self-directed study. The latter is complicated by the lack of comprehensive library facilities.

Telemedicine Development for East Africa

For all of these reasons it was apparent that teleconferencing as practiced in Canada had something to offer in the East African setting. Extensive experience with teleconferencing at Memorial University of Newfoundland led to the development of a link between East Africa and St. John's. In 1982 the Telemedicine group at Memorial University, with co-Directors of the Child and Maternal Health Program (CHAMP) in Uganda (supported by the Canadian International Development Agency) made an attempt to set up an audio teleconference link between the University of Nairobi and Makerere University in Kampala. Because of political events this project was impossible to implement at that time. A major catalyst for the continuing interest in development was found in the CIDA-sponsored program in the Department of Paediatrics at Makerere University. Since 1983, Canadian physicians have been serving at Makerere in a program of social paediatrics developed by paediatricians of Memorial University. Because of time pressure on the paediatric faculty at Makerere University and on their Canadian counterparts serving in the CHAMP program it was felt necessary to develop alternative means for extending the paediatric teaching beyond that which could normally be provided by Canadian visiting professors and their Ugandan counterparts.

To celebrate its twentieth anniversary Intelsat, the international satellite organization and the International Institute of Communications, announced its intention to make satellite circuits available free of charge to agencies who wold organize health education programs between the developed and less developed countries (Project SHARE). This provided an economically feasible method of setting up teleconference and telemedicine links between Canada and East Africa. Following a planning visit to Kenya and Uganda by the Director of Memorial's Telemedicine Centre, Memorial's application for participation in the SHARE Project was accepted. In Africa the program was sponsored by CHAMP with support from the Canadian International Development Agency.

A link between Uganda, Kenya and various Canadian medical centres seemed particularly appropriate in view of the medical cooperation between these countries during the past fifteen years dating back to the CIDA-sponsored McGill involvement with the development of a medical faculty at the University of Nairobi during the late 1960s and early 1970s. Under that program many of the faculty at the University of Nairobi received training at McGill in Paediatrics and Medicine and a number of Canadian physicans served as visiting faculty in Kenya. More recently, a series of Canadian paediatricians have served in Kampala under the Memorial University of Newfoundland CHAMP program, aimed at restoration of the paediatric program in Makerere University to its former stature. Because of these programs, there are numerous close personal contacts between Ugandan, Kenyan and Canadian academic physicians and this has facilitated the organization and execution of telemedicine programs of an educational or consultative nature.

During the period 1984-1985 support for the project was obtained from several organizations including CIDA, The Hospital for Sick Children Foundation, the Kenya Post and Telecommunications Corporation, the Uganda Post and Telecommunications Corporation, The University of Nairobi, Makerere University, the Newfoundland Telephone Company, and Teleglobe Canada. The satellite circuits between Canada and Kenya were provided free by the SHARE project. Microwave circuits were utilized between St. John's, Newfoundland, and the international gateway terminal in Montreal and between Nairobi and Kampala. The teleconference system was in place by December 1985 and the official opening took place in January 1986 between Kenya and Canada. A month later the link was extended to Uganda.

Initial Experience

Since the inauguration of the system on January 15th, 1986 there have been formal weekly conferences as well as informal teaching sessions. The formal didactic sessions have covered such topics as nutritional status and immune response, the management and treatment of idiopathic thrombocytopenic purpura, hepatitis in pregnancy and the newborn, and the epidemiology of HTLV III in East Africa. The Hospital for Sick Children in Toronto and the Montreal Children's Hospital have also contributed to the programs. Topics presented from these centres include emergency paediatric medicine, failure to thrive, and rickets.

An electroencephalogram transmitter was initially used in Nairobi for several weeks before being moved to Kampala where there is no functioning EEG laboratory. Electroencephalograms are transmitted from Mulago Hospital in Kampala to the EEG Department of the General Hospital in the Health Sciences Centre at St. John's twice weekly. The tracings are of excellent quality and can be interpreted with confidence.

The system is also able to provide a cost effective means of maintaining communication between North American medical research workers based in East Africa and their home laboratories. Teleconferencing facilitates group discussion of research objectives, protocol development, and data analysis and this may be done at reasonable cost. The present cost of conventional telephone links between East Africa and Canada is a considerable deterrent to the maintenance of communication.

It is hoped that the teleconference system may also provide supplementary support to the hard pressed libraries at the University of Nairobi and Makerere. These libraries have found it difficult to maintain up-to-date journal files and their facilities for literature searching are also limited. An attempt will be made through the teleconference system to develop on-line literature searching capacity with transmission of search requests at off-peak hours to minimize costs.

One of the main objectives of the Memorial/SHARE project is the transfer of expertise and technology to the University of Nairobi and Makerere University so that these two organications can have a functioning teleconference system after the SHARE project is finished late in 1986. It is also anticipated that other East African countries may participate in such a permanent system.

It is too early to assess fully the impact of the current teleconference link programs at these two Universities; however, it promises to become an important adjunct to teaching in the Departments of Paediatrics and probably in related medical departments as well. For example, the teleconference link has been used on a number of occasions to initiate contact and discussion between the Faculty of Pharmacy at the University of Nairobi and the Pharmacy Faculty at the University of Toronto. Such contact may eventually lead to international co-operation in the establishment of a drug information service in Nairobi. The postgraduate trainees in

paediatrics at both Universities have shown considerable enthusiasm for this project. Most formal sessions are attended by the majority of trainees and the level of audience participation has steadily increased as the residents become more familiar with the system.

Of potentially greater importance is the link between the Departments of Paediatrics in Nairobi and Kampala. The department at Makerere University has seen its efficiency reduced by several years of civil strife and uncertain support. The present ratio of faculty to postgraduate paediatric trainees is unsatisfactory and the availability of the teleconference system represents a major opportunity to redress this imbalance. With the system currently installed it will be possible to establish regular teleconference communication between the University of Nairobi and Makerere University so that these two neighbouring departments of paediatrics will be able to share in each other's academic activities including grand rounds, seminar discussions, case presentations, and formal teaching sessions. The link between Nairobi and Kampala can be used independently of the Canada-Africa satellite link, therefore additional conferencing can take place during the morning hours in Africa. It is anticipated that, following this year's project, a commercially available system between Nairobi and Kampala will be financially feasible.

Conclusion

While it is too early to predict the outcome of this project it is already clear that teleconferencing has much to offer East African medicine and is a worthy continuation of Canadian-East African cooperation in the medical field. It is particularly appropriate for Canada to export this type of telecommunications expertise to countries like Kenya and Uganda which share many of our communications problems.

In the process of aiding the development of effective telecommunications links between Nairobi and Kampala and eventually between other East African centres, Canadians will stand to learn more about the telecommunications process. New approaches to education and consultation through telemedicine can be effectively applied in many countries including our own. Most importantly, the telemedicine system seems to represent a cost-effective mechanism for the export of medical expertise and for the sharing of medical knowledge between countries and between areas within a country.

One of the major attractions of the teleconferencing system is its ability to provide optimal access for a wide audience to a variety of experts or teachers. This introduces an element of cost effectiveness which is lacking in more conventional medical support programs requiring travel and accommodation for visiting physicians in the host country. The medical faculties in Nairobi and Kampala require and deserve contact with a broad spectrum of academic physicians in a variety of disciplines and at the moment tnis objective can most realistically be achieved by promotion of satellite links such as the one described here.